In the Claims:

1-30. (Cancelled)

31. (Currently Amended) A transducer assembly for transducing bioacoustic signals, comprising:

a transducer element having a front side and a rear side;

a housing, the housing subject to ambient noise and comprising a surface surrounding the front side of the transducer element, the transducer element and the surrounding surface of the housing situated to establish intimate coupling with a surface of a body part during use, the body part surface defining a source of the bioacoustic signals; and

an ambient noise suppression arrangement comprising a selected area ratio of an effective area of the transducer element *sd* [[(*ad*)]] relative to an area of the surrounding surface of the housing *sh* [[(*ah*)]], wherein the effective area of the transducer element *sd* [[(*ad*)]] is less than 50% of the surrounding surface area *sh* [[(*ah*)]] and the selected area ratio provides for increased ambient noise suppression within a frequency range associated with the bioacoustic signals.

32. (Currently Amended) The transducer assembly of claim 31, wherein the selected area ratio is defined by $0.50 \geq sd/sh$ [[ad/ah]] ≥ 0.001.

33. (Currently Amended) The transducer assembly of claim 31, wherein the selected area ratio is defined by $0.20 \geq sd/sh$ [[ad/ah]] ≥ 0.05.

34. (Previously Presented) The transducer assembly of claim 31, wherein the selected area ratio provides for an increased signal-to-noise ratio (SNR) defined by a ratio of bioacoustic signal strength relative to ambient noise strength, wherein the increased SNR is achieved by a decrease in the net ambient noise strength.

35. (Previously Presented) The transducer assembly of claim 31, wherein the ambient noise suppression arrangement comprises an acoustical network through which ambient noise is communicated from air surrounding the housing to the rear side of the transducer element, the acoustical network configured to increase ambient noise suppression within the frequency range associated with the bioacoustic signals.

36. (Previously Presented) The transducer assembly of claim 31, further comprising interfacing material disposed over at least the front side of the transducer element and configured to provide good acoustical coupling between the transducer element and the surface of the body part during use.

37-42. (Cancelled).

43. (Currently Amended) A transducer assembly for transducing bioacoustic signals, comprising:

a skin coupling surface comprising a transducer element and having a front side and a rear side;

a housing, the housing subject to ambient airborne noise and comprising a surface surrounding the front side of the transducer element, the transducer element and the surrounding surface of the housing situated to establish intimate coupling with a surface of a body part during use, the body part surface defining a source of the bioacoustic signals; and

an ambient noise suppression arrangement configured to suppress ambient airborne noise coupled to the rear side of the skin coupling surface and ambient airborne noise coupled to the front side of the skin coupling surface, the ambient noise suppression arrangement configured to upwardly shift a transducer assembly resonance notch beyond an upper frequency limit of a frequency range associated with particular bioacoustic signals

wherein the ambient noise suppression arrangement comprises a selected area ratio of an effective area of the transducer element [[(*ad*)]] relative to an area of the surrounding surface of the housing.

44. (Currently Amended) The transducer assembly of claim 43, wherein the effective area of the transducer element [[(*ad*)]] is less than 50% of the surrounding surface area [[(*ah*)]] and the selected area ratio provides for increased ambient noise suppression within a frequency range associated with the particular bioacoustic signals.

45. (Cancelled).

46. (Previously Presented) A method of transducing bioacoustic signals, comprising:

providing a transducer assembly comprising a housing and a transducer element having a front side and a rear side, the housing comprising a surface surrounding the front side of the transducer element, the transducer element and the surrounding surface of the housing situated to establish intimate coupling with a surface of a body part during use, the body part surface defining a source of the bioacoustic signals;

communicating ambient noise through an opening in the housing and to the back side of the transducer element;

receiving ambient noise at the front side of the transducer element when the housing establishes intimate coupling with the body part surface during use; and

reducing ambient noise influencing the transducer element by upwardly shifting a transducer assembly resonance notch beyond an upper frequency limit of a frequency range associated with particular bioacoustic signals;

wherein reducing ambient noise influencing the transducer element comprises providing a selected area ratio of an effective area of the transducer element relative to an area of the surrounding surface of the housing, wherein the effective area of the transducer element is less than 50% of the surrounding surface area.

47. (Cancelled).

48. (Previously Presented) The method of claim 46, wherein communicating ambient noise through the housing opening comprises communicating the ambient noise through an acoustical network.

49. (Previously Presented) The method of claim 46, wherein the upper frequency limit is a frequency greater than 1000 Hz.

50. (Previously Presented) The method of claim 46, wherein the upper frequency limit is a frequency less than 1000 Hz.